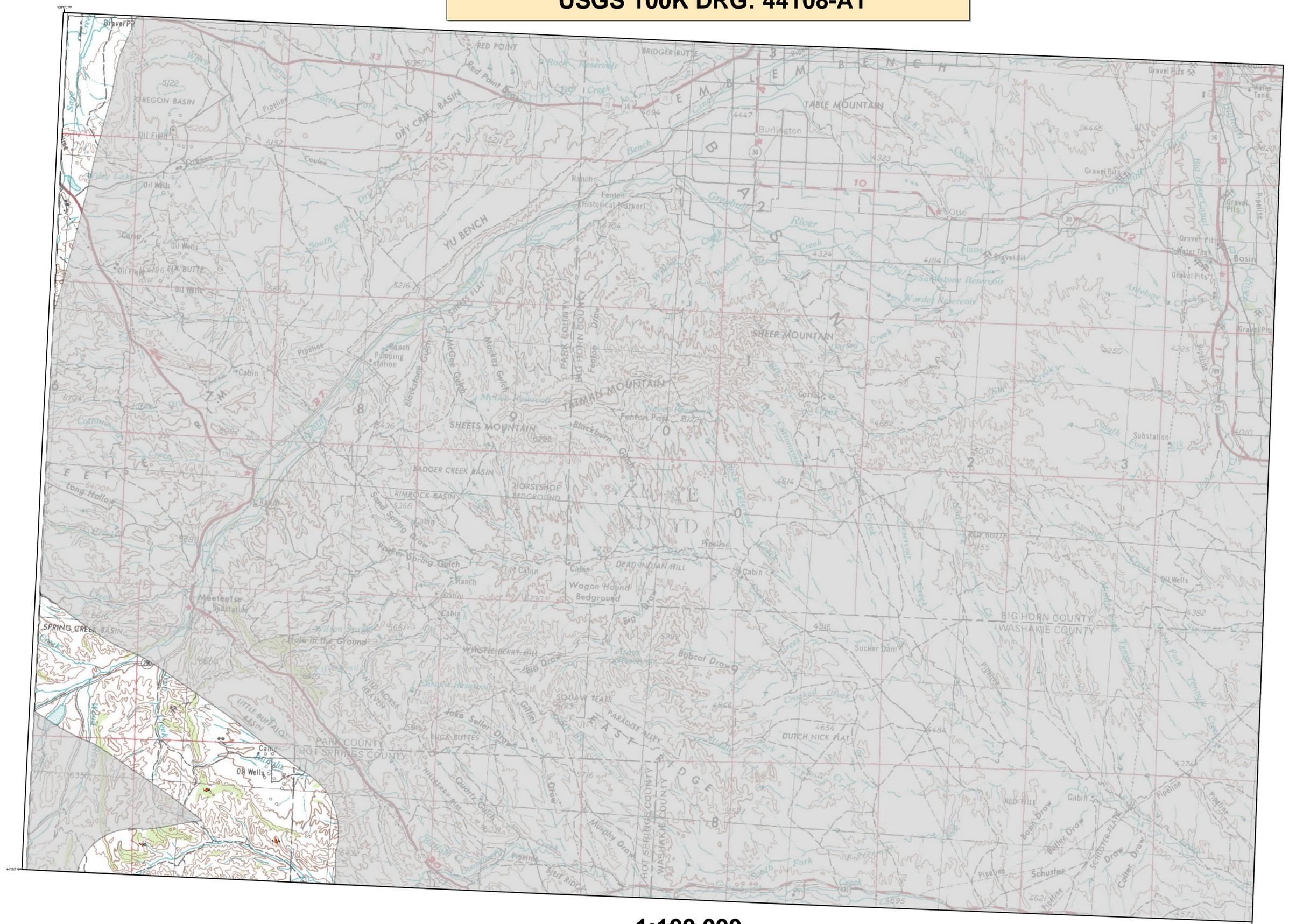


2009 Aerial Insect and Disease Survey Basin, Wyoming USGS 100K DRG: 44108-A1

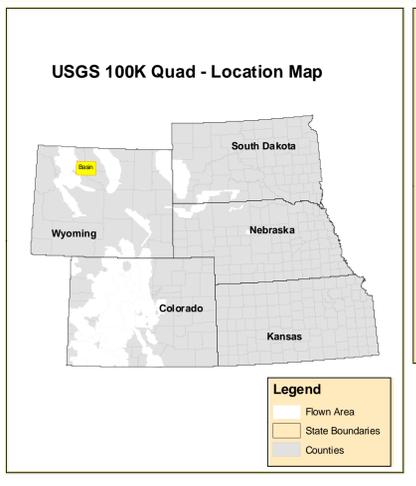


1:100,000

Legend

Use of the Number System
Example: 5-25 = The first number before the dash is the causal agent code. The number after the dash is the number of dead "faded" trees in the polygon or point. When recent dead trees are not counted, an intensity code of L-light, M-moderate, and H-high may be used after the causal agent code. Periodically, trees per acreage estimates are used after the causal agent code instead of number of dead "faded" trees (or an intensity code). For example: 5-1/2A = The first number before the dash is the causal agent code. The number after the dash is an estimation of the number of dead "faded" trees in the polygon per acre. In this case it would be an estimation that, on the average, one tree per every two acres would be a dead "faded" tree. In another example: 5-3A = that on the average, an estimated three trees per acre are dead "faded" trees. A "7" is used as a separator when a grid location has more than one causal agent.

Causal Agent	Primary Host	Causal Agent	Primary Host	Causal Agent	Primary Host
1 Douglas-fir beetle	Douglas-fir	41 Anopla	Lodgepole Pine	107 Fox squirrel flagging	Cottwood/Poplar
2 Engelmann Spruce Beetle	Engelmann Spruce	50 White pine blister rust	5-Needle Pine	107 fall webworm	Cottwood/Poplar
3 Mountain pine beetle	Ponderosa Pine	51 Dwarf mistletoe	Softwoods	108 road salt	Softwoods
4 Mountain pine beetle	Lodgepole Pine	62 Elyrodroma	Ponderosa Pine	109 pinewood nematode	Scotch Pine
5 Mountain pine beetle	5-Needle Pine	63 Includes #05, 06 & 09	All Tree Species	110 oak wilt	Oak
6 Western pine beetle	Ponderosa Pine	54 Air pollution	All Tree Species	111 blight disease	All Tree Species
7 Fir Engriaver	White Fir	55 Chemical damage	All Tree Species	112 spruce ips	White Spruce
8 Douglas-fir engraver beetle	Douglas-fir	56 Lophodermium annotinum	Softwoods	113 redwood borer	Oak
9 Western balsam bark beetle	Subalpine Fir	67 Rhabdocline pseudotsugae	Douglas-fir	114 anthracnose like foliar disease	Bur Oak
10 Unidentified bark beetle	Softwoods	68 Lophodermium araucariae	Softwoods	115 Diaback	All Tree Species
11 Pine engraver	Lodgepole Pine	69 Leptodermium araucariae	Softwoods	116 Mortality	All Tree Species
12 Pine engraver	Ponderosa Pine	60 Lophodermium concolor	Softwoods	117 Discoloration	All Tree Species
13 Lodgepole pine needle miner	Lodgepole Pine	61 Dothistroma anis	Softwoods	118 Fagging	All Tree Species
14 Lodgepole pine needle miner	Ponderosa Pine	62 Necedia (Hypodermataceae)	Softwoods	119 Flaggng	All Tree Species
15 Jack pine budworm	Jack Pine	63 Unidentified disease	Softwoods	120 aspen tortix	Quaking Aspen
16 Spruce budworm, light defol.	Douglas-fir	64 Unidentified disease	Softwoods	121 Marssonina Blight	Quaking Aspen
17 Spruce budworm, medium defol.	Douglas-fir	65 Winter damage light	All Tree Species	200 Diaback (oak)	Ash
18 Spruce budworm, heavy defol.	Douglas-fir	66 Winter damage medium	All Tree Species	201 Diaback (cottonwood)	Cottwood/Poplar
19 Pine tussock moth	Douglas-fir	67 Winter damage heavy	All Tree Species	202 Diaback (hardwood)	Hardwoods
20 Pine tussock moth	Ponderosa Pine	68 Diaback	Softwoods	204 Diaback (oak)	Oak
21 Pine looper	Ponderosa Pine	69 Pinjon black stain	Common Pinjon	210 Mortality (old cottonwood)	Cottwood/Poplar
22 Tent caterpillars	Hardwoods	70 Fire	All Tree Species	211 Mortality (eastern cedar)	Eastern Red Cedar
23 Leaf beetles	Hardwoods	71 Fire	All Tree Species	212 Mortality (hardwood)	Hardwoods
24 Oak leaf roller	Hardwoods	72 Windthrow	All Tree Species	213 Mortality (oak)	Oak
25 Pine needle-sheath miner	Ponderosa Pine	73 High water damage	All Tree Species	214 Mortality (spruce)	Spruce
26 Pine needle-sheath miner	Ponderosa Pine	74 Avulsione	All Tree Species	220 Discoloration (ash)	Ash
27 Pine tussock moth	Ponderosa Pine	75 Aspen decline-multiple agents)	Common Pinjon	221 Discoloration (spruce)	Softwoods
28 Cantharids	Hardwoods	76 Pinjon pine mortality	Common Pinjon	222 Discoloration (cottonwood)	Cottwood/Poplar
29 Variable oak leaf caterpillar	Hardwoods	77 Juniper mortality-unknown agents)	Juniper	223 Discoloration (eastern cedar)	Eastern Red Cedar
30 Unidentified defolator	All Tree Species	78 Gambel oak decline-unknown agents)	Quaking Oak	224 Discoloration (hardwood)	Oak
31 Herbivorous arthropod (Fomes annosus)	All Tree Species	79 Limber pine decline-multiple agents)	Limber Pine	225 Discoloration (oak)	Oak
32 Armillaria ostoyae (Armillaria mellea)	Softwoods	80 Unknown	Unknown	226 Discoloration (spruce)	Spruce
33 Polyporus schweinitzii	Softwoods	81 Unknown polygon	Unknown	230 Herbicide (cottonwood)	Cottwood/Poplar
34 Phomopsis	All Tree Species	82 old pinjon mortality	Common Pinjon	231 Herbicide (eastern cedar)	Eastern Red Cedar
35 Western gall rust	Unknown	83 Limber pine mortality	Limber Pine	232 Discoloration (hardwood)	Hardwoods
36 Cantharid rust	Unknown	84 dutch elm disease	Elm	233 Discoloration (oak)	Cottwood/Poplar
37 Shearblow rust	Lodgepole Pine	85 Ribwort	Ponderosa Pine	234 Discoloration (spruce)	Spruce
38 Shearblow rust	Lodgepole Pine	86 ips hunter	Spruce, White Spruce	252 Unidentified defolator (hardwood)	Hardwoods
		87 spruce killed narrow leaf cottonwood	Narrowleaf Cottonwood	300 Mortality (pine)	Pine



How Aerial Surveys Are Conducted

Data represented on this map are based on aerial observations manually recorded onto a map. This procedure is considered both an art form and a form of scientific data collection, and is highly subjective. An observer only has a few seconds to recognize the color difference between healthy and damaged trees of different species; diagnose causal agents correctly; estimate intensity; delineate the extent of damage; and precisely record this information on a georeferenced map. Air turbulence, cloud shadows, distance from aircraft, haze, smoke, and observer experience can all affect the quality of the survey. These data summaries provide an estimate of conditions on the ground and may differ from estimates derived by other methods.

Aerial surveys provide information on the current status for many causal agents, and are important when examining insect activity trends by comparing historical and current survey data over large areas.

Overview surveys are a 'snap shot' in time and therefore may not be timed to accurately capture the true extent or severity of a particular disturbance activity. Aerial surveys can be thought of as the first stage in a multi-stage sampling design. Other remote sensing approaches, including aerial photography, electro-optical sensors, and specially designed aerial surveys with modified flight patterns, can be used to more accurately delineate the extent and severity of a particular disturbance agent. The preceding methods are often more costly than overview surveys, and are generally reserved to address situations of sufficient environmental, economic, or political importance.

Map Created December 3 2009
Projection: UTM NAD83 Zone 13
Author: J. Ross, USDA Forest Service

A data dictionary and digital copies of this map and the insect and disease data are available at: <http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>

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*****DISCLAIMER*****

Forest Health Protection (FHP) and its partners strive to maintain an accurate Aerial Detection Survey (ADS) Dataset, but due to the conditions under which the data are collected, FHP and its partners shall not be held responsible for missing or inaccurate data. ADS are not intended to replace more specific information. An accuracy assessment has not been done for this dataset; however, ground checks are completed in accordance with local and national guidelines <http://www.fs.fed.us/foresthealth/aviation/qualityassurance.shtml>. Maps and data may be updated without notice. Please cite "USDA Forest Service, Forest Health Protection and its partners" as the source of this data in maps and publications.

Due to the nature of aerial surveys, the data on this map will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented on this map because these agents are not detectable from aerial surveys. The data presented on this map should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and causal agent. Shaded areas show locations where tree mortality or defoliation were apparent from the air. Intensity of damage is variable and not all trees in shaded areas are dead or defoliated.

The insect and disease data represented on this map are available digitally from the USDA Forest Service, Region Two Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this map for purposes other than those for which it was intended may yield inaccurate or misleading results.